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To: Jim Martin
Central Valley Water Quality Control Board

From: Alex Hildebrand

cc John Herrick, Steve Bayley, Steve Shaffer, Dan Odenweller, Karl Longley, Lloyd Fryer, Dan Nelson

This memo comments on the agricultural analyses in the Feb. 29 Draft Central Valley Salinity Project Report by Richard Hewitt, et al.,that you distributed on March 3.

That Report includes an extensive theoretical and mathematical analysis of salinity effects on future crop choices that farmers are presumed to make in order to maximize their profit. This approach has utility, but must be considered in conjunction with other effects of salinity that are too complex to be mathematically analyzed. For example:

- The root zone salinity that results from the salinity of irrigation water depends in part on the ability to control the leach fraction; i.e., the amount of unconsumed water that flushes salt out of the root zone. This in turn is affected by the permeability of the soil and the depth of a given crop's root zone, and the feasible frequency and duration of irrigations. It is also affected by the depth of soil if it limits the depth of the root zone.
- The seedlings of a given crop are typically more salt sensitive than mature plants, so the depth of the root zone and the salinity requirement varies as the plant grows.

The Report also fails as a predictor of future crop patterns because salinity is only one consideration in choosing crops. For example:

- Water salinity is clearly a factor in crop selection, but the choice is also governed by relative risk - risk of damage by high wind or unseasonable freeze, or a cannery strike, or a processing plant going out of business, or a loss of water supply, or lack of bees for pollination, or lack of an adequate labor force, etc.
- Market supply and demand must also be considered as they affect commodity prices. There are half a million more Californians every year. Three quarters of an acre foot of water must be consumed by crops to grow food for each of those people. The official State Water Plan makes no provision for this increase in consumptive water use.

The report should be used with caution and should not be considered more predictive than it is.